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MIPS to enter the 32-bit MCU fray

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MANHASSET, N.Y. — MIPS Technologies Inc., best known as a supplier of IP cores used in SoCs, will enter the fast-growing, high-volume 32-bit microcontroller (MCU) market.

MIPS described its MCU strategy Tuesday (Oct. 30) at a conference in Tokyo.

Leveraging its MIPS processor cores and a library of analog IP blocks acquired through its [recent merger with analog IP company Chipidea](#), MIPS aims to become a one-stop shop for for 32-bit MCU system applications.

MIPS move comes as the value of an MCU is increasingly determined by memory, coprocessors and peripherals. MIPS will seek a slice of the MCU market by offering a wide range of peripheral IPs in addition to its CPU cores.

Jack Browne, vice president of marketing at MIPS, said the company's move will lower the barrier to entry to the 32-bit MCU market—not only for MCU vendors but also for a broad range of embedded system designers and distributors. "We offer a whole ecosystem," including processor cores, analog IP and familiar, low-cost hardware/software tools, said Browne.

Customers, he added, will be able to use MIPS' general-purpose processor cores, ranging from the low-power MIPS32-bit M4K core to the high-performance MIPS32 24K family, for MCU applications. MIPS will also offer new features in its entry-level M4K core specifically for MCUs. They include improved instruction-flow trace, more register windows and standby capabilities.

Growing 32-bit MCU market

MIPS is targeting one of the hottest semiconductor market segments. The global 32-bit MCU market is projected to grow at a compounded annual growth rate (CAGR) of 24.5 percent on a unit basis through 2011, according to Semico Research. Reflecting a highly competitive MCU market, the CAGR in sales during the same period is projected to reach 17.8 percent. Semico predicts 32-bit MCU market in 2007 to be \$4.2 billion in sales, and 974 million in units.

The current 32-bit MCU market is dominated by proprietary 32-bit microcontroller suppliers such as Renesas (27.7 percent market share), NEC (22.9 percent) and Freescale (17.3 percent), said Tony Massimini, Semico's chief of technology.

While the MIPS MCU venture as an IP supplier is unlikely to change that landscape, MIPS "can open up new markets" just as ARM has enabled "very strong growth" for MCU vendors with ARM-based products, Massimini said. Along with ARM, "MIPS becomes another choice for designers" within the very competitive 32-bit MCU market, he added.

Max Baron, principal analyst and senior editor at [Microprocessor Report](#), agreed. "The majority of proprietary 32-bit MCU suppliers will keep selling their own MCUs, but they may add a MIPS or ARM line, or even both," he said.

The MIPS architecture and its well-proven development tools could also help accelerate MIPS-based MCUs in the market. "There are customers already familiar with the MIPS architecture through their use of MIPS cores in ASICs they may be designing or buying from ASSP vendors," said Richard Wawrzyniak, senior market analyst for the ASIC and [SoC markets](#) at Semico. They could benefit from MIPS's MCU entry, he said, since "there will be less time spent" in learning and supporting a second, different architecture in their systems, he added.

Another plus for MIPS is the breadth of its cores. Citing workstations implemented with MIPS processors, Baron said, "MIPS has always been associated with high performance. Its introduction as a core for MCU's promises that performance can be scaled up when needed."

Low power is another important element. According to Baron, Sony's Playstation Portable "is employing two MIPS cores designed to low-power specs. MIPS can claim that it can deliver efficient performance."

MIPS views its [Chipidea acquisition](#) as the catalyst for the success of its 32-bit MCU strategy. "MCUs can contain a lot of analog functions," said Semico's Wawrzyniak. "The analog part of the design often ends up being both the most critical and the hardest to get right," he said. "MIPS's ability to approach an MCU supplier and offer this additional IP is important."

Baron also called the analog IP available from Chipidea "a significant plus" since it allows potential customers to negotiate deals for a larger slice of IP. Moreover, "during system debug they now have analog and digital technical support under one roof. This is a major advantage since it's not very often that you find digital or analog system designers that are equally familiar with both disciplines," he added.

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